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Published:
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18 March 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: BACILLUS LICHENIFORMIS MUTANT HOST CELL

(57) Abstract: A *Bacillus licheniformis* mutant host cell comprising a mutation (deletion) in one or more genes encoding polypeptides involved in antibiotic synthesis, wherein the mutant host cell expresses at least 5% less of the one or more polypeptides involved in antibiotic synthesis than the parent host cell, when cultivated under comparable conditions. The mutant host cell is used for producing heterologous polypeptides.

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/DK 03/00199

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N15/75 C12N1/21 C07K14/32

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C12N C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 22598 A (NOVO NORDISK BIOTECH INC) 28 May 1998 (1998-05-28) page 7, line 29 -page 8, line 16 page 10, line 19 -page 11, line 4; claims	1-21
A	WO 02 00907 A (JOERGENSEN STEEN TROELS ;OLSEN CARSTEN (DK); NOVOZYMES AS (DK); AN) 3 January 2002 (2002-01-03) claims	6,7
A	WO 91 13554 A (NOVONORDISK AS) 19 September 1991 (1991-09-19) page 2, line 24 -page 3, line 10 page 4, line 22 -page 5, line 8; claim 3	1-21

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
15 July 2003	31 10. 2003

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Ida Christensen

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/DK 03/00199

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-21 (partially)

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-21 (partially).

   A Bacillus licheniformis mutant host cell, which is mutated in at least one gene encoding a polypeptide involved in antibiotic synthesis, which polypeptide is at least 80% identical to the polypeptide shown in SEQ ID No:2.

2. Claims: 1-21 (partially).

   A Bacillus licheniformis mutant host cell, which is mutated in at least one gene encoding a polypeptide involved in antibiotic synthesis, which polypeptide is at least 80% identical to the polypeptide shown in SEQ ID No:4.

3. Claims: 1-21 (partially).

   A Bacillus licheniformis mutant host cell, which is mutated in at least one gene encoding a polypeptide involved in antibiotic synthesis, which polypeptide is at least 80% identical to the polypeptide shown in SEQ ID No:6.

4. Claims: 1-21 (partially).

   A Bacillus licheniformis mutant host cell, which is mutated in at least one gene encoding a polypeptide involved in antibiotic synthesis, which polypeptide is at least 80% identical to the polypeptide shown in SEQ ID No:8.

5. Claims: 1-21 (partially).

   A Bacillus licheniformis mutant host cell, which is mutated in at least one gene encoding a polypeptide involved in antibiotic synthesis, which polypeptide is at least 80% identical to the polypeptide shown in SEQ ID No:10.

6. Claims: 1-21 (partially).

   A Bacillus licheniformis mutant host cell, which is mutated in at least one gene encoding a polypeptide involved in antibiotic synthesis, which polypeptide is at least 80% identical to the polypeptide shown in SEQ ID No:12.

7. Claims: 1-21 (partially).

   A Bacillus licheniformis mutant host cell, which is mutated in at least one gene encoding a polypeptide involved in

antibiotic synthesis, which polypeptide is at least 80% identical to the polypeptide shown in SEQ ID No:14.

8. Claims: 1-21 (partially).

A Bacillus licheniformis mutant host cell, which is mutated in at least one gene encoding a polypeptide involved in antibiotic synthesis, which polypeptide is at least 80% identical to the polypeptide shown in SEQ ID No:16.

9. Claims: 1-21 (partially).

A Bacillus licheniformis mutant host cell, which is mutated in at least one gene encoding a polypeptide involved in antibiotic synthesis, which polypeptide is at least 80% identical to the polypeptide shown in SEQ ID No:18.

10. Claims: 1-21 (partially).

A Bacillus licheniformis mutant host cell, which is mutated in at least one gene encoding a polypeptide involved in antibiotic synthesis, which polypeptide is at least 80% identical to the polypeptide shown in SEQ ID No:20.

11. Claims: 1-21 (partially).

A Bacillus licheniformis mutant host cell, which is mutated in at least one gene encoding a polypeptide involved in antibiotic synthesis, which polypeptide is at least 80% identical to the polypeptide shown in SEQ ID No:22.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/DK 03/00199

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